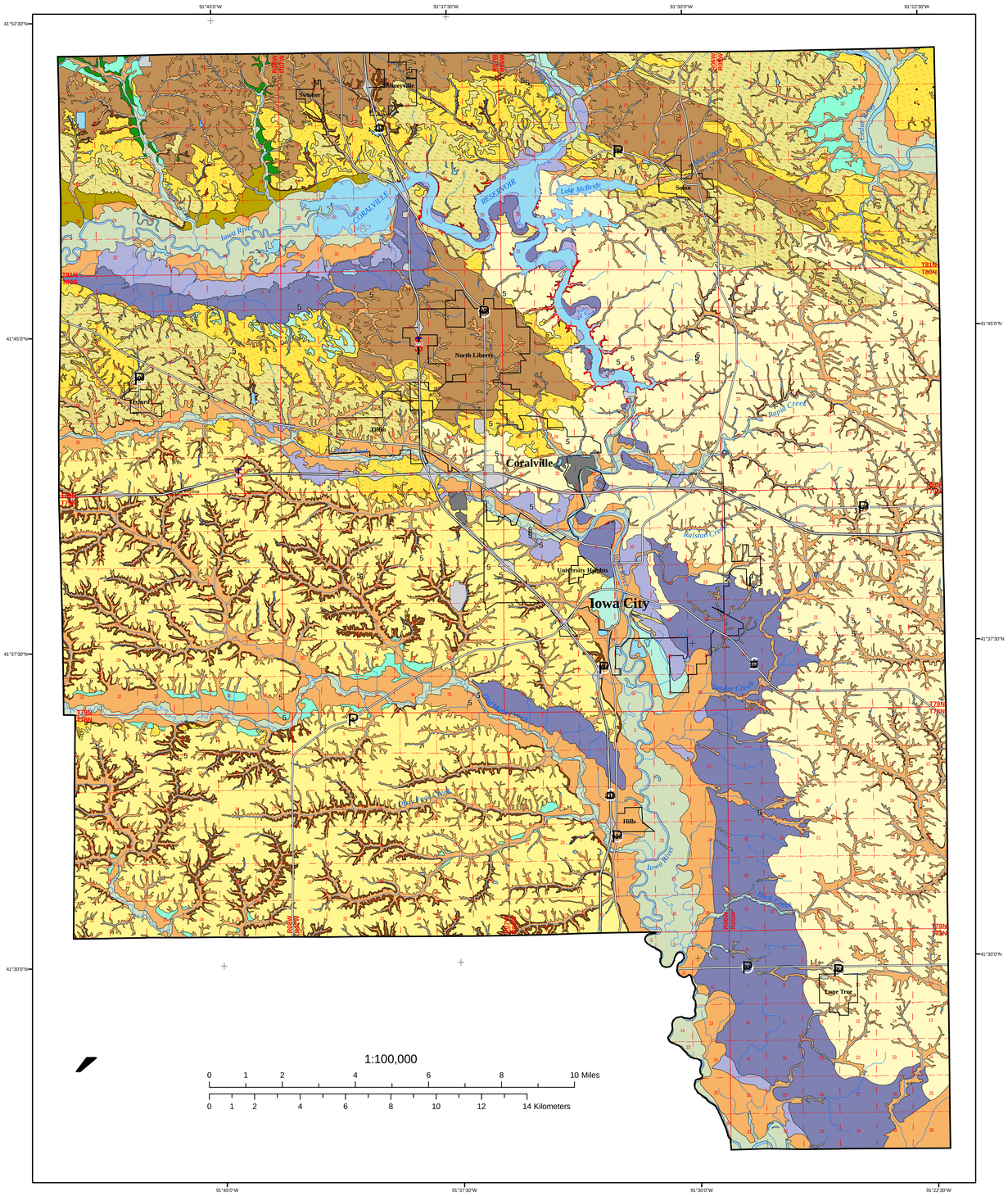
Surficial Geologic Materials of Johnson County, Iowa



LEGEND

Description of Map Units

HUDSON EPISODE

Qal - Alluvium (De Forest Formation-Undifferentiated) One to four meters of massive to weakly stratified, grayish brown to brown loam, silt loam, clay loam, or loamy sand overlying less than three meters of poorly to moderately well sorted, massive to moderately well stratified, coarse to fine feldspathic quartz sand, pebbly sand, and gravel and more than three meters of pre-Wisconsin or late Wisconsin Noah Creek Formation sand and gravel. Also includes colluvium derived from adjacent map units in stream valleys, on hillslopes, and in closed depressions. Includes areas previously mapped as Qalit (Intermediate Terrace), Qaliht (Intermediate-High Terrace), and Qalht (High Terrace) on the Tiffin and Iowa City East Quadrangle maps. Eolian dunes composed of Peoria Formation-sand facies (associated with Qaliht and Qalht) may be located on the surface. Seasonal high water table occurs in this map unit.

Qallt - Iowa River Valley- Low Terrace (DeForest Formation-Camp Creek Mbr. and Roberts Creek Mbr.) Variable thickness of less than 1 to 5 meters of very dark gray to brown, noncalcareous, stratified silty clay loam, loam, or clay loam, associated with the Holocene channel belt of the Iowa River valley. Overlies Noah Creek Formation. Ox-bow lakes and meander scars are common features associated with this terrace level. Post settlement alluvium thickness varies from .5 meter in higher areas to 2 meters along the river course and in lower lying areas. Seasonal high water table and frequent flooding potential.

Qaf - Alluvial fan (Corrington Mbr.) Variable thickness of 2 to 5 meters of dark brown to yellowish brown, noncalcreous, silt loam to loam with interbedded lenses of fine sand and silts. A pebble lag is commonly found at or near the fan surface. Overlies a buried intermediate terrace. Steep angled fans at the base of low order drainages and colluvial slopes along the northern margin of the Iowa River Valley.

WISCONSIN EPISODE

Qnw - Sand and Gravel (Noah Creek Formation) More than three meters of yellowish brown to gray, poorly to well sorted, massive to well stratified, coarse to fine feldspathic quartz sand, pebbly sand and gravel. In places mantled with one to three meters of fine to medium, well sorted sand derived from wind reworking of the alluvium. This unit encompasses deposits that accumulated in stream valleys during the Wisconsin Episode.

Qpt- High Terrace- either Late Phase or Early Phase (Peoria Formation – silt and/or sand facies) Two to seven meters of yellowish brown to gray, massive, jointed, calcareous or noncalcareous, silt loam and intercalated fine to medium, well sorted, sand. May grade downward to poorly to moderately well sorted, moderately to well stratified, coarse to fine feldspathic quartz sand, loam, or silt loam alluvium (Late Phase) or may overlie a Farmdale Geosol developed in Roxanna Silt which in turn overlies a well-expressed Sangamon Geosol developed in poorly to moderately well sorted, moderately to well stratified, coarse to fine sand, loam, or silt loam alluvium (Early Phase).

Qptlp - Late Phase High Terrace (LPHT) (Peoria Formation—silt and/or sand facies) Two to seven meters of yellowish brown to gray, massive, jointed, calcareous or noncalcareous, silt loam and intercalated fine to medium, well sorted, sand. Grades downward to poorly to moderately well sorted, moderately to well stratified, coarse to fine feldspathic quartz sand, loam, or silt loam alluvium.

Qptep - Early Phase High Terrace (EPHT) (Peoria Formation—silt and/or sand facies) Two to seven meters of yellowish brown to gray, massive, jointed, calcareous or noncalcareous, silt loam and intercalated fine to medium, well sorted, sand. The Peoria deposits overlie a Farmdale Geosol developed in Roxanna Silt which in turn overlies a well-expressed Sangamon Geosol developed in poorly to moderately well sorted, moderately to well stratified, coarse to fine sand, loam, or silt loam alluvium.

Qps - Loess (Peoria Formation—silt facies) Generally 2 to 6 meters of yellowish to grayish brown, massive, jointed noncalcareous grading downward to calcareous silt loam to silty clay loam. This unit is very uniform and sands are rarely present. Overlies a grayish brown to olive gray silty clay loam to silty clay (Pisgah Formation—eroded Farmdale Geosol) which is less than 1.5 meters thick. The Farmdale Geosol appears to be disturbed by periglacial action and is welded to an older Sangamon Geosol developed in loess. This mapping unit encompasses upland divides, ridgetops and convex sideslopes. Well to somewhat poorly drained landscape.

Qps1 - Loess and Intercalated Eolian Sand (Peoria Formation—silt facies) Two to five meters of yellowish brown to gray, massive, fractured, noncalcareous grading downward to calcareous silt loam and intercalated fine to medium, well sorted, sand. Sand is most abundant in lower part of the eolian package. Overlies massive, fractured, loamy glacial till of the Wolf Creek or Alburnett formations with or without intervening clayey Farmdale /Sangamon Geosol.

Qps1b - Thick Loess and Intercalated Eolian Sand (Peoria Formation-silt facies) Five to fifteen meters of yellowish brown to gray, massive, noncalcareous grading downward to calcareous silt loam and intercalated fine to medium, well sorted, sand. Minimum thickness of five meters on uplands. Maximum thickness of two to seven meters of loess occurs on adjacent slopes. Overlies massive, fractured, loamy glacial till of the Wolf Creek or Alburnett formations with or without intervening clayey Farmdale /Sangamon Geosol.

Qps2 - Eolian Sand and Intercalated Silt (Peoria Formation—sand facies) Five to fifteen meters of yellowish brown to gray, moderately to well stratified noncalcareous or calcareous, fine to medium, well sorted, eolian sand. May contain interbeds of yellowish brown to gray, massive, silt loam loess. Overlies eroded, massive, fractured, loamy glacial till of the Wolf Creek or Alburnett formations or fractured Devonian-age carbonate bedrock.

Qwa1 - Sand and Gravel Shallow to Till (Unnamed erosion surface sediment) One to three meters of yellowish brown to pale brown, massive to weakly stratified, noncalcareous, medium to coarse, poorly sorted pebbly to cobbly sand with intercalated gravel and loam. Overlies massive, fractured, firm, loamy glacial till of the Wolf Creek or Alburnett formations. Deposits in this mapping unit are derived primarily from erosion of glacial till in the adjacent drainage basin. Seasonally high water table may occur in this map unit. Moderate flood potential.

Qwa2 - Loamy and Sandy Sediment Shallow to Glacial Till (Unnamed erosion surface sediment) One to three meters of yellowish brown to gray, massive to weakly stratified, well to poorly sorted loamy, sandy and silty erosion surface sediment. Map unit includes some areas mantled with less than two meters of Peoria Silt (loess). Overlies massive, fractured, firm glacial till of the Wolf Creek and Alburnett formations. Seasonally high water table may occur in this map unit.

PRE ILLINOIAN EPISODE

Qwa3 - Till (Wolf Creek or Alburnett Formations) Generally 10 to 35 meters of very dense, massive, fractured, loamy glacial till of the Wolf Creek or Alburnett Formations with or without a thin loess mantle (Peoria Formation—less than 2 meters) and intervening clayey Farmdale/ Sangamon Geosol. This mapping unit encompasses narrowly dissected interfluves and side slopes, and side valley slopes. Drainage is variable from well drained to poorly drained.

PALEOZOIC

Penn – Undifferentiated Pennsylvanian Bedrock Sandstones, siltstones, and mudstones

Du - Fractured Devonian Carbonate Bedrock Interbedded limestones and dolostones primarily of the Cedar Valley Group and minor areas of the Wapsipinicon Group. Locally developed as bedrock aquifer.

Su – Undifferentiated Silurian Bedrock Dolomite

Qpq - Pits and Quarries Sand and gravel pits and rock quarries.

Qf - Fill Areas of cut and fill associated with railroad grades, major highways, airports and retail and industrial developments. Deposits within this map unit are similar to those in adjacent map units but may have significant mantles of fill or deep cuts that expose underlying deposits.

Water Features Rivers, lakes and small ponds formed by blockage of drainageways and river channels.

5 **Drilling Sites**

SURFICIAL GEOLOGIC MATERIALS OF JOHNSON COUNTY, IOWA

Iowa Geological Survey Open File Map 04-03, September 2004

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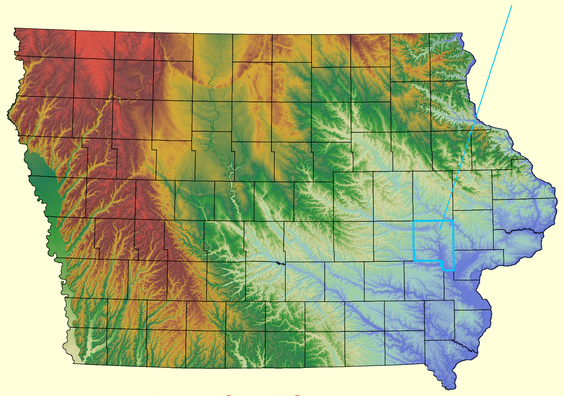

Location Diagram